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OXC-1938
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18 July 1961

MEMORANDUM FOR THE RECORD

SUBJECT : Conversation with [redacted] Lockheed Aircraft Corporation, on 17 July Regarding Engine Repairs on 1649 Constellation Aircraft

REFERENCE : A. Memo for the Record from ASST CH/DPD, Dated 14 July 1961; Subject: "Conversation with Mr. [redacted] 13 July 1961, Regarding Engine Repairs on 1649 Constellation Aircraft" (OXC-1920)

B. ADIC 2067 (OUT 95606), Dated 13 July 1961

1. As a follow-up on my conversation last week with Kelly Johnson, [redacted] called me to throw a little different light on things than his boss had. Reference A dealt with a modest engine retrofit program proposed by Kelly which, according to Kelly, was going to run approximately $2,000 per engine on each of six engines. In accordance with that conversation, Reference B was sent, authorizing Lockheed to proceed on a not-to-exceed $12,000 basis with the necessary repairs. [redacted] statements, representing in fact the working level at Lockheed, bear out my earlier suspicion that Kelly may not have researched the matter quite as fully as he should have.

2. [redacted] states that Curtiss-Wright intends to repair the secondary damage to the number three engine which failed on 25 June in flight as a result of what Kelly called a "supercharger drive shaft failure". [redacted] identifies this as an "impeller drive gear failure". According to [redacted] the actual cost of replacing the impeller drive gear is only $1,780. The balance of the reported $20,000 damage was apparently secondary resulting from the failure of this particular item. Under the terms of the warranty, all that Curtiss-Wright is required to do in fixing the number three engine is to return it to the shape which it was the day of its failure over Prescott, Arizona. They do not have a responsibility to retrofit the engine

beyond that point. The ballpark figure of $2,000 for the complete retrofit which Kelly gave me on the phone last week now appears to be slightly in error; [redacted] reports that it is more on the order of $3,166 which represents the differential between that figure and $1,780 for the impeller drive gear, since the package cost of an entire retrofit, according to [redacted] STATINTL is $4,946.

3. In this connection it is well to mention that since our aircraft was built and the engines installed in late 1956, there have been a total of twenty-four so-called "Product Improvement Bulletins" issued by Curtiss-Wright on the 988TC18EA-2 engines. These cover a variety of items, according STATINTL to [redacted] some of them costing as little as $7.50, while others, such as the impeller drive gear and steel fuel injection lines, are in the neighborhood of $1,700 each. In my earlier conversation with Kelly, he had implied that most of these improvements could be performed on the aircraft STATINTL without removing the engines. [redacted] advises me that out of the total of twenty-four items only eight can be accomplished without taking the engine from the airplane and tearing it down. I should mention here that while we have a total of six engines in all, we are only talking about a complete retrofit on four, since the two spares purchased from TWA by Kelly 25X1A2d1 included all of the twenty-four Improvement Bulletins. Even though we were advised at the time of purchasing the [redacted] that we were buying it with zero time engines they were not subjected to the total retrofit at the time of their last overhaul.

4. The eight items which could be performed on the flight line without removing the engines total $1,895. Most of these, of course, are 25X1A2d1 improvements in the controls and accessories rather than in the guts of the engine itself. What worries me is that while we can sit still for down time 25X1A6a on the [redacted] this summer, once we commence the Burbank to [redacted] shuttle this fall, we will need the utmost reliability in performance. Once person- 25X1A2d1 nel move to the Test Center in numbers sufficient to require the [redacted] every time that the aircraft is AOCP we will be obliged to pay someone to substitute an aircraft on a short-time, high-cost basis. Since the impeller drive gear appears critical in the non-retrofitted EA-2 engines, it seems only a matter of time before we can expect another in-flight shut down with a complete engine change (not a QEC). Since we have, or will have, three of the total of six engines with the old gears, this gives us a chance of losing another from three to five weeks on our operating schedule across a two-year period. In the normal course of events, compliance with Product Improvement Bulletins would occur in fact at the time of engine overhaul. This is true in airline operation where there is obviously more than one aircraft available to fly a particular route. In our case I feel that we should not wait. Therefore, I propose the following:

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a. Immediately authorize the removal from the aircraft of the three remaining non-retrofitted engines with the understanding that LAC will arrange with a Curtiss-Wright franchised repair facility to tear down the power plants and comply with twenty-four Improvement Bulletins. The total cost of this exercise on the three engines is $14,838, plus approximately $500 per engine paid to Lockheed for labor to remove and reinstall the engines once they have been brought up to standard. This totals roughly $16, 338.

STATINTL b. I have orally advised [redacted] to authorize a complete retrofit of the number three engine which failed on 25 June and which is currently being repaired under the Curtiss-Wright warranty. This amounts to an additional $3,166.

c. Since the engine damaged by Captive-Air at Burbank earlier this month contained all Product Improvements (it being one of the TWA spares), no additional dollars are anticipated as necessary on this engine.

The total dollars mentioned are $19,504. Previously authorized by Reference B was a total of $12,000. I anticipate preparing a cable to Lockheed STATINTL authorizing the additional work, which [redacted] estimates will keep the aircraft on the ground approximately two weeks following receipt of such authorization. The ETIC will be covered then by the availability of the first four engines out of repair or retrofit. Naturally, these figures are subject to confirmation by Lockheed. The Chief, Development Branch, concurs in the proposed action, which will be covered under CON-200.

25X1A9a

SIGNED

[redacted]
Assistant Chief
DPD-DD/P

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